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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/622,360	08/16/2000	Keiji Shigesada	Q60187	3575

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EXAMINER	
LUK, EMMANUEL S	
ART UNIT	PAPER NUMBER
1722	

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/622,360	SHIGESADA ET AL.
	Examiner	Art Unit
	Emmanuel S. Luk	1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13-15,17 and 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13-15,17 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyairi in view of Asai.

Miyairi teaches the claimed apparatus with a gate from the tip (5a), a recess (4) that acts as a reservoir, a compression core (6) that acts as a cut punch that is located on a movable die (2), the cut punch moves towards the gate while the material is still in the molten state (Col. 3, lines 60-65). The molten state of the material denotes that there is a hot runner due to the hot nozzle (5). The structure is capable of operating regardless of the material condition. The condition of the material when the cut punch is

moved is a process limitation of a structure and is therefore an intended use of the apparatus.

Miyairi fails to teach the undercut portion provided at a periphery of the distal end of the cut punch and moving the cut punch when the resin material is still molten.

Asai teaches the cut punch (25) surrounding the ejector pin (26) having a undercut portions at the distal end (Fig. 1) and the cut punch protrudes into the reservoir (G) after injection of the molten resin and during cooling before opening of the mold halves (Col. 1, lines 22-27).

It would have been obvious to one of ordinary skill in the art to modify Miyairi with a cut punch as taught by Asai because it allow for severing of the material at the gate portion from the product.

4. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suekichi.

Suekichi teaches the claimed apparatus with a cavity (3), a sprue (2) and disc gate (2), a punch that advances (4) upwards towards the gate while the material is still in its molten state, causing some of the material to flow back into the sprue and another part into the cavity, the recess (Fig. 1, 2) acting as a reservoir opposite the punch. The molten state of the material denotes that the sprue acts as a hot runner for the material to be introduced. The structure is capable of operating regardless of the material condition. The condition of the material when the cut punch is moved is a process limitation of a structure and is therefore an intended use of the apparatus.

Suekichi fails to teach the undercut portion provided at a periphery of the distal end of the cut punch and moving the cut punch when the resin material is still molten.

Asai teaches the cut punch (25) surrounding the ejector pin (26) having a undercut portions at the distal end (Fig. 1) and the cut punch protrudes into the reservoir (G) after injection of the molten resin and during cooling before opening of the mold halves (Col. 1, lines 22-27).

It would have been obvious to one of ordinary skill in the art to modify Suekichi with a cut punch as taught by Asai because it allow for severing of the material at the gate portion from the product.

5. Claim 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyairi.

Miyairi teaches the claimed apparatus having a fixed and movable dies (1, 2), runner (7) and gate (8), a cavity (3) and resin (9) that remains in the recess section, the communicating portion between the recess and the cavity is formed when the cut punch (6) is not moved to close the gate. The movement of the cut punch depending on the condition of the material is a process limitation of a structure and is therefore an intended use of the apparatus.

Miyairi fails to teach the undercut portion provided at a periphery of the distal end of the cut punch and moving the cut punch when the resin material is still molten.

Asai teaches the cut punch (25) surrounding the ejector pin (26) having a undercut portions at the distal end (Fig. 1) and the cut punch protrudes into the reservoir

(G) after injection of the molten resin and during cooling before opening of the mold halves (Col. 1, lines 22-27).

It would have been obvious to one of ordinary skill in the art to modify Miyairi with a cut punch as taught by Asai because it allow for severing of the material at the gate portion from the product.

6. Claim 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi.

Takahashi teaches the claimed apparatus having a fixed and movable dies (43, 52), runner via injection hole (46), the material flow (102) through the gate, the material (98) forming inside the cavity and the compressed resin (10) formed in the reservoir section, the communicating portion between the reservoir and the cavity is formed when the cut punch (54) is not moved to close the gate. The cut punch having a distal end with undercuts (Fig. 3A-3C) and a pin (55) that moves independently of the cut punch via driving means (Col. 5, lines 46-58) located within the cut punch. The movement of the cut punch depending on the condition of the material is a process limitation of a structure and is therefore an intended use of the apparatus. The cut punch (54) having undercut portions (Fig. 1).

Takahashi fails to teach the undercut portion provided at a periphery of the distal end of the cut punch and moving the cut punch when the resin material is still molten.

Asai teaches the cut punch (25) surrounding the ejector pin (26) having a undercut portions at the distal end (Fig. 1) and the cut punch protrudes into the reservoir

(G) after injection of the molten resin and during cooling before opening of the mold halves (Col. 1, lines 22-27).

It would have been obvious to one of ordinary skill in the art to modify Takahashi with a cut punch as taught by Asai because it allow for severing of the material at the gate portion from the product.

7. Claims 1-3, 5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyairi in view of Asai, Kadoriku et al, Ikuo and Kunio.

Miyairi teaches the claimed apparatus with a gate from the tip (5a), a recess (4) that acts as a reservoir, a compression core (6) that acts as a cut punch that is located on a movable die (2), the cut punch moves towards the gate while the material is still in the molten state (Col. 3, lines 60-65). The molten state of the material denotes that there is a hot runner due to the hot nozzle (5). The structure is capable of operating regardless of the material condition. The condition of the material when the cut punch is moved is a process limitation of a structure and is therefore an intended use of the apparatus.

Miyairi fails to teach a plurality of cavities, resin reservoirs and cut punches, and valve gate structure to close the gate and moving the cut punch when the inner portion of the resin material is still molten and the undercut portion provided at a periphery of the distal end of the cut punch.

Asai teaches the cut punch (25) surrounding the ejector pin (26) having a undercut portions at the distal end (Fig. 1) and the cut punch protrudes into the reservoir

(G) after injection of the molten resin and during cooling before opening of the mold halves (Col. 1, lines 22-27).

Kadoriku et al teaches an injection molding method for thin components having a sprue region (5a), in the upper mold (2), the resin material is filled into the cavity (5) and is cooled down and gradually cured from the sides near the molds (2,4), in the cooling process, the gate cut punch (8) is lifted up separating the sprue portion (B1) from the disk substrate (B) formed of the resin material shaped in the cavity (5) (Col. 4, lines 1-23). It would have been obvious to one of ordinary skill in the art to operate the apparatus to wait until cooling has occurred before operating the gate cut punch. Kadoriku teaches the partial curing of the resin material near the molds and one skilled in the art can determine that the inner portion of the materials is still molten due to heat transfer where it is cooler at the portions of the material that is closest to the molds.

Ikuo teaches the simultaneous molding of a plurality of products by a plurality of cavities and cut punches. This is a multiplied effect of producing a plurality of products via simultaneously molding of a plurality of elements. In regards to claim 7, the plural pairs of the elements is a plurality of the elements.

Kunio teaches a valve gate structure as a valve pin (26) that moves forward to cut off the flow of the material (R) to the gate (23) as it joins with gate closing part (33) to prevent material from flowing into the cavity (3).

It would have been obvious to one of ordinary skill in the art to modify Miyairi with have a plurality of cavities, resin reservoirs and cut punches as taught by Ikuo to mold a plurality of molded products, a valve gate structure as taught by Kunio to shut off the

flow of materials to the gate and actuating the gate cut punch as taught by Kadoriku with the inner portion still in the molten state thus cutting down on the cycle time of the apparatus and a cut punch as taught by Asai because it allow for severing of the material at the gate portion from the product.

In regards to claim 5, the resin reservoir corresponding to a shape of the opening of the resin molded product, this is a change in form or shape of the reservoir to conform to the product. Additionally, the change in depth for the movement of the cut punch into the reservoir is merely a change in shape and size. In re Dailey et al, 149 USPQ 47 (CCPA 1966).

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyairi in view of Asai, Kadoriku et al, Ikuo and Kunio as applied to claims 1-3, 5, 13 and 14 above, and further in view of Ohno et al.

Miyairi fails to teach a valve gate.

Ohno teaches a valve gate (14) that acts to stop to the flow of material to the cavity.

It would have been obvious to one of ordinary skill in the art to modify Miyairi with a valve gate as taught by Ohno because it helps control the flow of material to the cavity.

9. Claims 7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyairi in view of Asai as applied to claims 6 and 8, and further in view of Ikuo and Kunio.

Miyairi teaches the claimed apparatus with a gate from the tip (5a), a recess (4) that acts as a reservoir, a compression core (6) that acts as a cut punch that is located on a movable die (2), the cut punch moves towards the gate while the material is still in the molten state (Col. 3, lines 60-65). The molten state of the material denotes that there is a hot runner due to the hot nozzle (5). The structure is capable of operating regardless of the material condition. The condition of the material when the cut punch is moved is a process limitation of a structure and is therefore an intended use of the apparatus.

Miyairi fails to teach a plurality of cavities, resin reservoirs and cut punches, and valve gate structure to close the gate, the undercut portion provided at a periphery of the distal end of the cut punch and moving the cut punch when the resin material is still molten.

Asai teaches the cut punch (25) surrounding the ejector pin (26) having a undercut portions at the distal end (Fig. 1) and the cut punch protrudes into the reservoir (G) after injection of the molten resin and during cooling before opening of the mold halves (Col. 1, lines 22-27).

Ikuo teaches the simultaneous molding of a plurality of products by a plurality of cavities and cut punches. This is a multiplied effect of producing a plurality of products

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Kunio teaches a valve gate structure as a valve pin (26) that moves forward to cut off the flow of the material (R) to the gate (23) as it joins with gate closing part (33) to prevent material from flowing into the cavity (3).

It would have been obvious to one of ordinary skill in the art to modify Miyairi with have a plurality of cavities, resin reservoirs and cut punches as taught by Ikuo to mold a plurality of molded products, and a valve gate structure as taught by Kunio to shut off the flow of materials to the gate and a cut punch as taught by Asai because it allow for severing of the material at the gate portion from the product.

In regards to claims 10 and 11, the resin reservoir corresponding to a shape of the opening of the resin molded product, this is a change in form or shape of the reservoir to conform to the product. Additionally, the change in depth for the movement of the cut punch into the reservoir is merely a change in shape and size. In re Dailey et al, 149 USPQ 47 (CCPA 1966).

10. Claims 1-3, 5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suekichi in view of Asai, Kadoriku et al, Ikuo and Kunio.

Suekichi teaches the claimed apparatus with a cavity (3), a sprue (2) and disc gate (2), a punch that advances (4) upwards towards the gate while the material is still in its molten state, causing some of the material to flow back into the sprue and another part into the cavity, the recess (Fig. 1, 2) acting as a reservoir opposite the

punch. The molten state of the material denotes that the sprue acts as a hot runner for the material to be introduced. The structure is capable of operating regardless of the material condition. The condition of the material when the cut punch is moved is a process limitation of a structure and is therefore an intended use of the apparatus.

Suekichi fails to teach the undercut portion provided at a periphery of the distal end of the cut punch and moving the cut punch when the resin material is still molten, a plurality of cavities, resin reservoirs and cut punches, and valve gate structure to close the gate and moving the cut punch when the inner portion of the resin material is still molten.

Asai teaches the cut punch (25) surrounding the ejector pin (26) having a undercut portions at the distal end (Fig. 1) and the cut punch protrudes into the reservoir (G) after injection of the molten resin and during cooling before opening of the mold halves (Col. 1, lines 22-27).

Kadoriku et al teaches an injection molding method for thin components having a sprue region (5a), in the upper mold (2), the resin material is filled into the cavity (5) and is cooled down and gradually cured from the sides near the molds (2,4), in the cooling process, the gate cut punch (8) is lifted up separating the sprue portion (B1) from the disk substrate (B) formed of the resin material shaped in the cavity (5) (Col. 4, lines 1-23). It would have been obvious to one of ordinary skill in the art to operate the apparatus to wait until cooling has occurred before operating the gate cut punch. Kadoriku teaches the partial curing of the resin material near the molds and one skilled

in the art can determine that the inner portion of the materials is still molten due to heat transfer where it is cooler at the portions of the material that is closest to the molds.

Ikuo teaches the simultaneous molding of a plurality of products by a plurality of cavities and cut punches. This is a multiplied effect of producing a plurality of products via simultaneously molding of a plurality of elements. In regards to claim 7, the plural pairs of the elements are a plurality of the elements.

Kunio teaches a valve gate structure as a valve pin (26) that moves forward to cut off the flow of the material (R) to the gate (23) as it joins with gate closing part (33) to prevent material from flowing into the cavity (3).

It would have been obvious to one of ordinary skill in the art to modify Suekichi with have a plurality of cavities, resin reservoirs and cut punches as taught by Ikuo to mold a plurality of molded products, and a valve gate structure as taught by Kunio to shut off the flow of materials to the gate and actuating the gate cut punch as taught by Kadoriku with the inner portion still in the molten state thus cutting down on the cycle time of the apparatus and a cut punch as taught by Asai because it allow for severing of the material at the gate portion from the product.

In regards to claim 5, the resin reservoir corresponding to a shape of the opening of the resin molded product, this is a change in form or shape of the reservoir to conform to the product. Additionally, the change in depth for the movement of the cut punch into the reservoir is merely a change in shape and size. In re Dailey et al, 149 USPQ 47 (CCPA 1966).

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suekichi in view of Asai, Kadoriku et al, Ikuo and Kunio as applied to claims 1-3, 5, 13 and 14 above, and further in view of Ohno et al.

Suekichi fails to teach a valve gate.

Ohno teaches a valve gate (14) that acts to stop to the flow of material to the cavity.

It would have been obvious to one of ordinary skill in the art to modify Suekichi with a valve gate as taught by Ohno because it helps control the flow of material to the cavity.

12. Claims 7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suekichi in view of Asai, Ikuo and Kunio.

Suekichi teaches the claimed apparatus with a cavity (3), a sprue (2) and disc gate (2), a punch that advances (4) upwards towards the gate while the material is still in its molten state, causing some of the material to flow back into the sprue and another part into the cavity, the recess (Fig. 1, 2) acting as a reservoir opposite the punch. The molten state of the material denotes that the sprue acts as a hot runner for the material to be introduced. The structure is capable of operating regardless of the material condition. The condition of the material when the cut punch is moved is a process limitation of a structure and is therefore an intended use of the apparatus.

Suekichi fails to teach the undercut portion provided at a periphery of the distal end of the cut punch and moving the cut punch when the resin material is still molten, a

plurality of cavities, resin reservoirs and cut punches, and valve gate structure to close the gate.

Asai teaches the cut punch (25) surrounding the ejector pin (26) having a undercut portions at the distal end (Fig. 1) and the cut punch protrudes into the reservoir (G) after injection of the molten resin and during cooling before opening of the mold halves (Col. 1, lines 22-27).

Ikuo teaches the simultaneous molding of a plurality of products by a plurality of cavities and cut punches. This is a multiplied effect of producing a plurality of products via simultaneously molding of a plurality of elements. In regards to claim 7, the plural pairs of the elements are a plurality of the elements.

Kunio teaches a valve gate structure as a valve pin (26) that moves forward to cut off the flow of the material (R) to the gate (23) as it joins with gate closing part (33) to prevent material from flowing into the cavity (3).

It would have been obvious to one of ordinary skill in the art to modify Suekichi with have a plurality of cavities, resin reservoirs and cut punches as taught by Ikuo to mold a plurality of molded products, and a valve gate structure as taught by Kunio to shut off the flow of materials to the gate and a cut punch as taught by Asai because it allow for severing of the material at the gate portion from the product.

In regards to claims 10 and 11, the resin reservoir corresponding to a shape of the opening of the resin molded product, this is a change in form or shape of the reservoir to conform to the product. Additionally, the change in depth for the movement

of the cut punch into the reservoir is merely a change in shape and size. In re Dailey et al, 149 USPQ 47 (CCPA 1966).

Response to Arguments

13. Applicant's arguments with respect to claims 1-11, 13-15, 17 and 18 have been considered but are moot in view of the new ground(s) of rejection. The applicants have amended the claims to include an undercut in the cut punch and further argued about the punch moving in the molten material. Asai addresses the issue of the undercut portion in the cut punch and further moves the cut punch right after injection of the material during cooling and before opening of the die halves. The undercut portions on the periphery of the distal end of the cut punch as shown in the applicant's figures are similar to the ones taught by Asai with the undercut portion indenting inward on the distal end of the cut punch, furthermore it is actually located on the periphery, or edge, of the distal end of the cut punch. The arguments provided by the applicants have been considered but are now moot in light of the new rejection that addresses the issues the applicants have raised.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (703) 305-1558. The examiner can normally be reached on Monday through Friday 8 to 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (703) 308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

JOSEPH DRODGE
PRIMARY EXAMINER

E.L.